



Northwest (HHS Region 10)

ATTC Addiction Technology Transfer Center Network
Funded by Substance Abuse and Mental Health Services Administration



Northwest ATTC presents:

Methamphetamine use Trends and Consequences in the Northwestern United States

Sara Glick, PhD
UW School of Medicine &
King County Public Health



LANGUAGE MATTERS.

Words have power.



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Today's Presenter

Methamphetamine use Trends and Consequences in the Northwestern United States

Sara Glick, PhD

- Research Assistant Professor, UW School of Medicine, Division of Allergy & Infectious Diseases
- Epidemiologist & Site Principal Investigator, King County Public Health, HIV/STD Program
- Focus:
 - Health consequences of injection drug use
 - Harm reduction strategies



METHAMPHETAMINE USE TRENDS AND CONSEQUENCES IN THE NORTHWESTERN UNITED STATES

Sara Glick, PhD, MPH (she/her)

University of Washington
Public Health – Seattle & King County

Northwest ATTC – Webinar – July 31, 2019

Outline

- What is methamphetamine?
- Why are we talking about methamphetamine (again)?
- Methamphetamine and HIV
- Why do people use methamphetamine?
- Methamphetamine treatment and harm reduction
- Conclusions
- Q & A

WHAT IS METHAMPHETAMINE?

Methamphetamine is a Highly Addictive Stimulant

- Synthetic drug
 - Amphetamine
 - + other chemicals
- AKA meth, tina, crank, ice, crystal
- Powerful stimulant
 - Highly addictive
 - Affects the central nervous system
 - Long lasting
- U.S. DEA schedule II stimulant
 - Legally available via nonrefillable prescription
 - Used rarely (and at lower doses) to treat ADHD and as an appetite suppressant



Routes of Methamphetamine Use

- Smoke
- Inject
- Ingest
- Snort
- Dissolve sublingually
- Rectal administration
- Liquid consumption



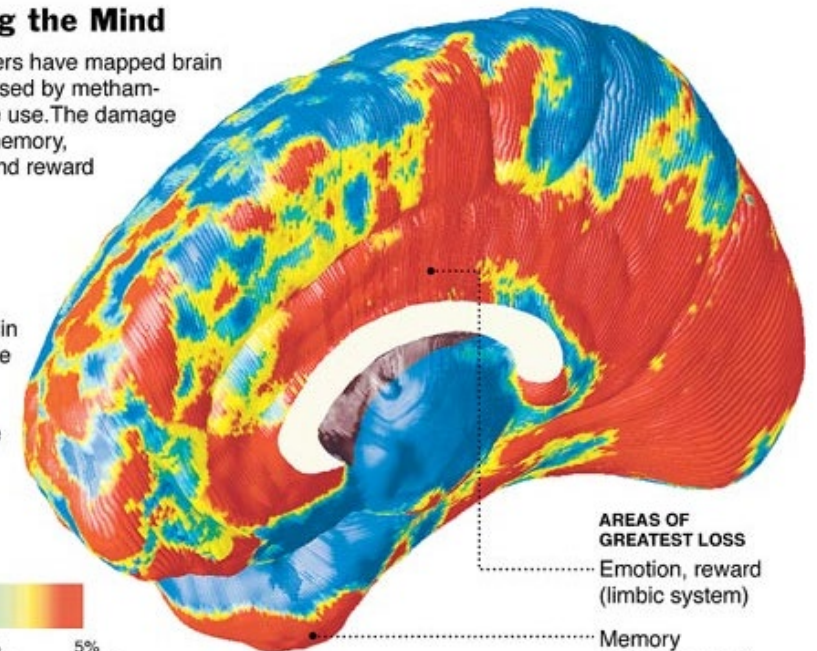
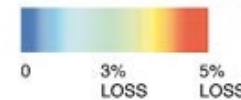
Methamphetamine Changes the Brain

- Increases **dopamine** release
 - Movement, attention, learning, emotional responses
 - Reward system and reinforcement
 - Much higher levels than cocaine
 - Blocks dopamine re-uptake
- Increases **norepinephrine** release
 - Arousal and alertness
 - Increases heart rate and blood pressure
- Increases **serotonin** release
 - Well-being and happiness

Eroding the Mind

Researchers have mapped brain decay caused by methamphetamine use. The damage affected memory, emotion and reward systems.

Average difference in brain tissue volume of methamphetamine users, as compared with non-users:



Source: Dr. Paul Thompson, U.C.L.A.

Short-Term Effects of Methamphetamine Use

“Typical” 🙄

- Increased wakefulness
- Increased attention
- Hyperactivity
- Decreased appetite
- Euphoria and rush
- Increased respiration
- Rapid/irregular heartbeat
- Hyperthermia

High Doses 🥵

- Fever, sweating, headache
- Blurred vision, dizziness
- Stomach & muscle cramps
- Chest pains
- Shaking
- Nausea and vomiting
- Dehydration
- Psychosis

Very High Doses 🤯

- Hyperthermia
- Hypertension
- Cardiac arrhythmia
- Cerebral hemorrhage
- Seizures
- Renal failure
- Rhabdomyolysis
- Wakefulness to the point of collapse or coma

Long-Term Effects of Methamphetamine Use

- Cardiovascular

- Coronary artery disease
- Cardiomyopathy
- Acute myocardial infarction



- Gastrointestinal

- Paralytic ileus



- Neurological / Behavioral

- Dependence
- Cognitive impairment
 - Memory, executive function, language
 - Fine motor impairment
 - Motor deficits, impaired gait
 - Increased risk of Parkinson disease
- Anxiety / depression
- Violent behavior
- Insomnia
- Repetitive motions
- Severe dental disease
- Skin scratching
- Psychosis



WHY ARE WE TALKING
ABOUT METH (AGAIN)?



Keep
the "reducer"
happy

'METHEDRINE'®

in **OBESITY**

means help

- For those who eat too much
- For those who are depressed

'Methedrine' dispels abnormal craving for food, subtly elevates the mood.


'Methedrine' brand Methamphetamine Hydrochloride Tablets 5 mg., scored

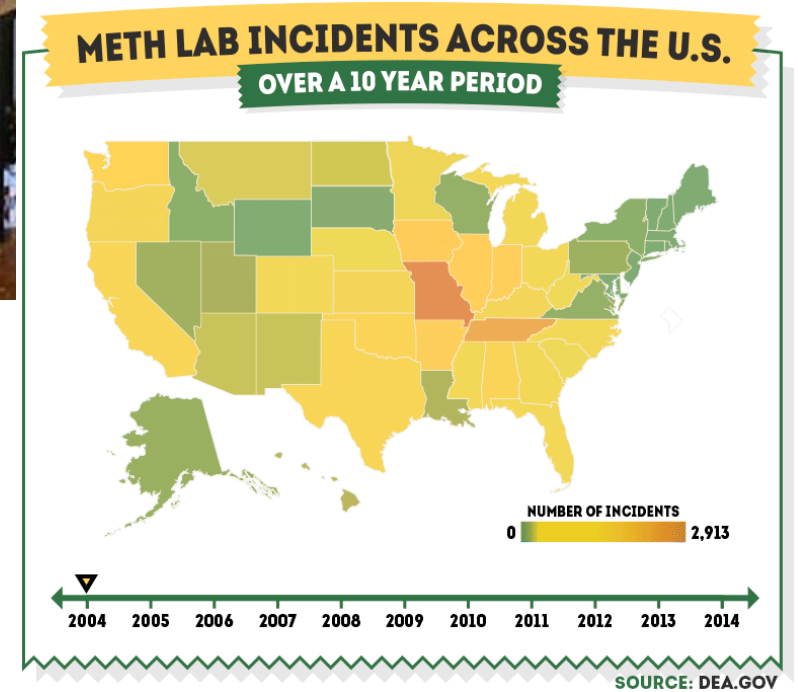
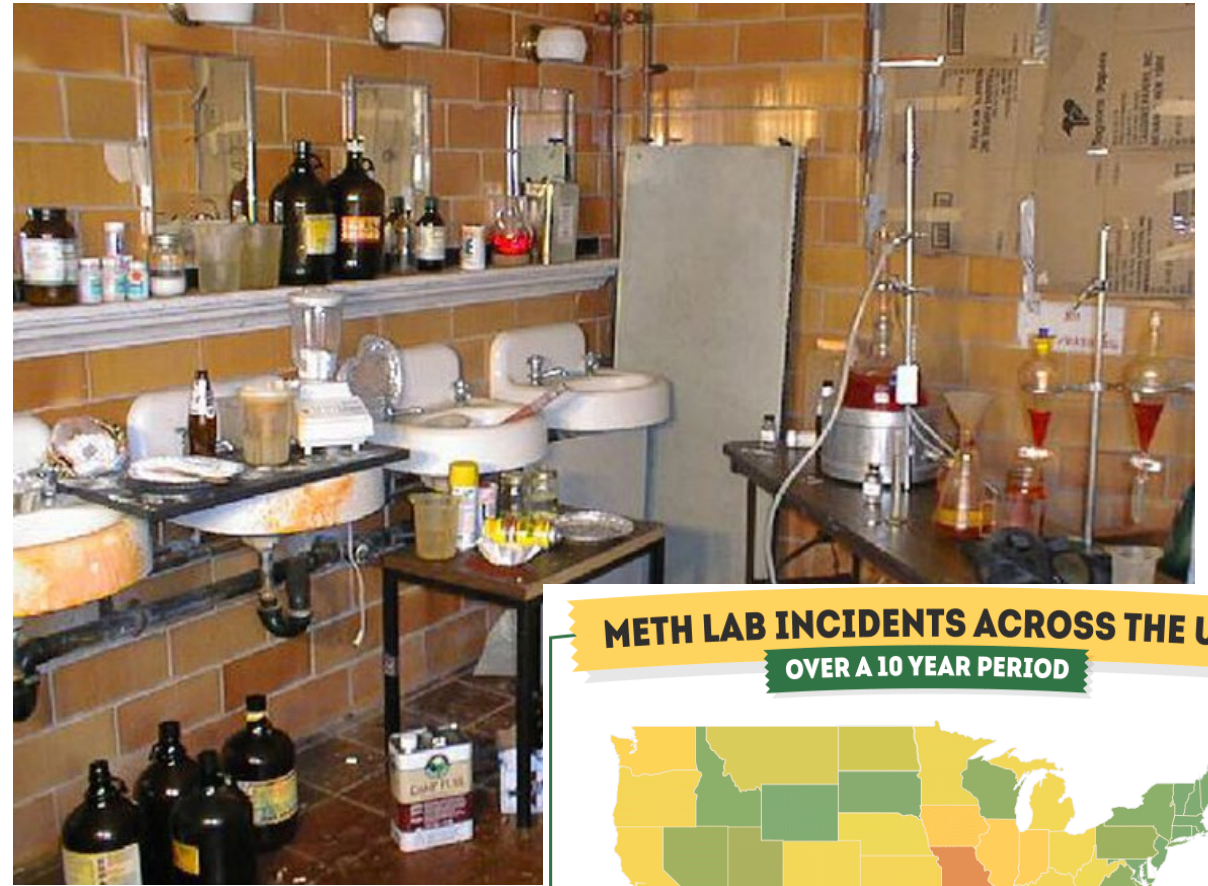
A genuinely brighter
outlook for the
depressed patient

'METHEDRINE'®

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Methamphetamine
Hydrochloride





The New York Times

Meth, the Forgotten Killer, Is Back. And It's Everywhere.

By Frances Robles

Feb. 13, 2018

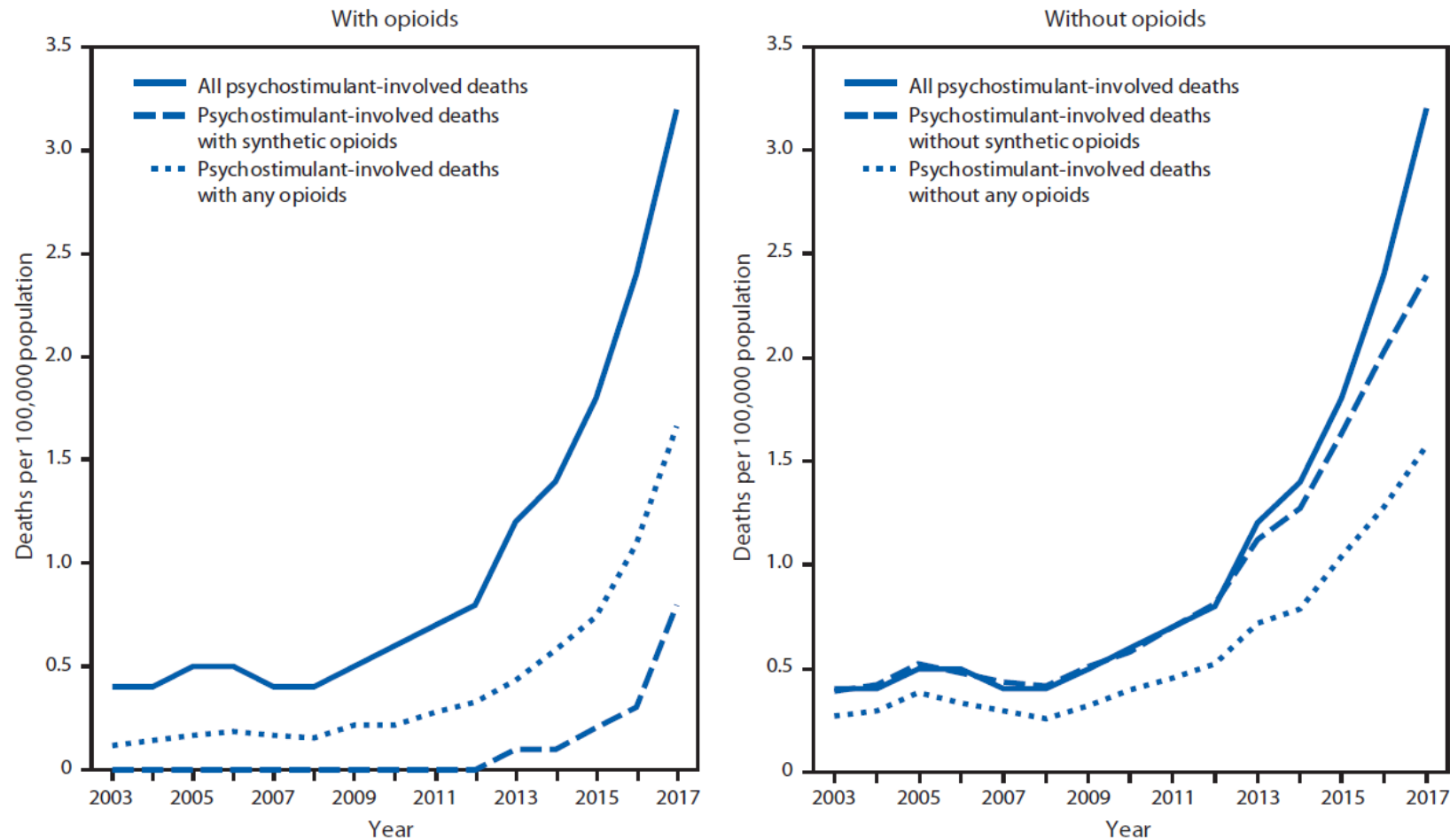
How Do We Monitor Methamphetamine Use?

- Overdose deaths
- Behavioral surveys
 - National probability-based surveys
 - Local surveys (e.g., syringe service program clients)
- Other indicators
 - Treatment admissions
 - Law enforcement seizures
 - Waste water analysis



Methamphetamine-Involved Deaths Have Increased

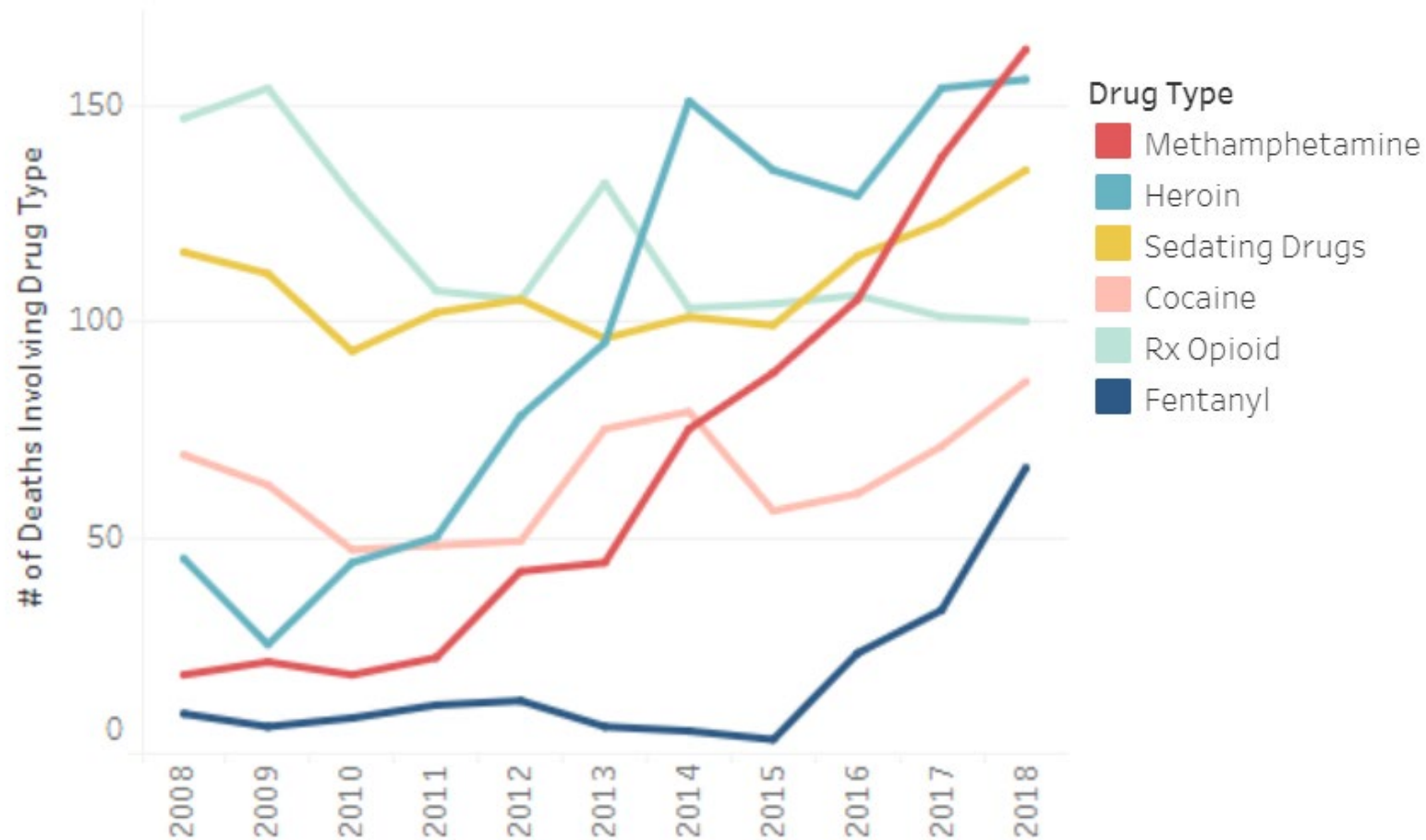
FIGURE 2. Age-adjusted rates* of drug overdose deaths† involving psychostimulants with abuse potential§ (psychostimulants) with and without synthetic opioids other than methadone (synthetic opioids) and any opioids¶ — United States, 2003–2017**,**††



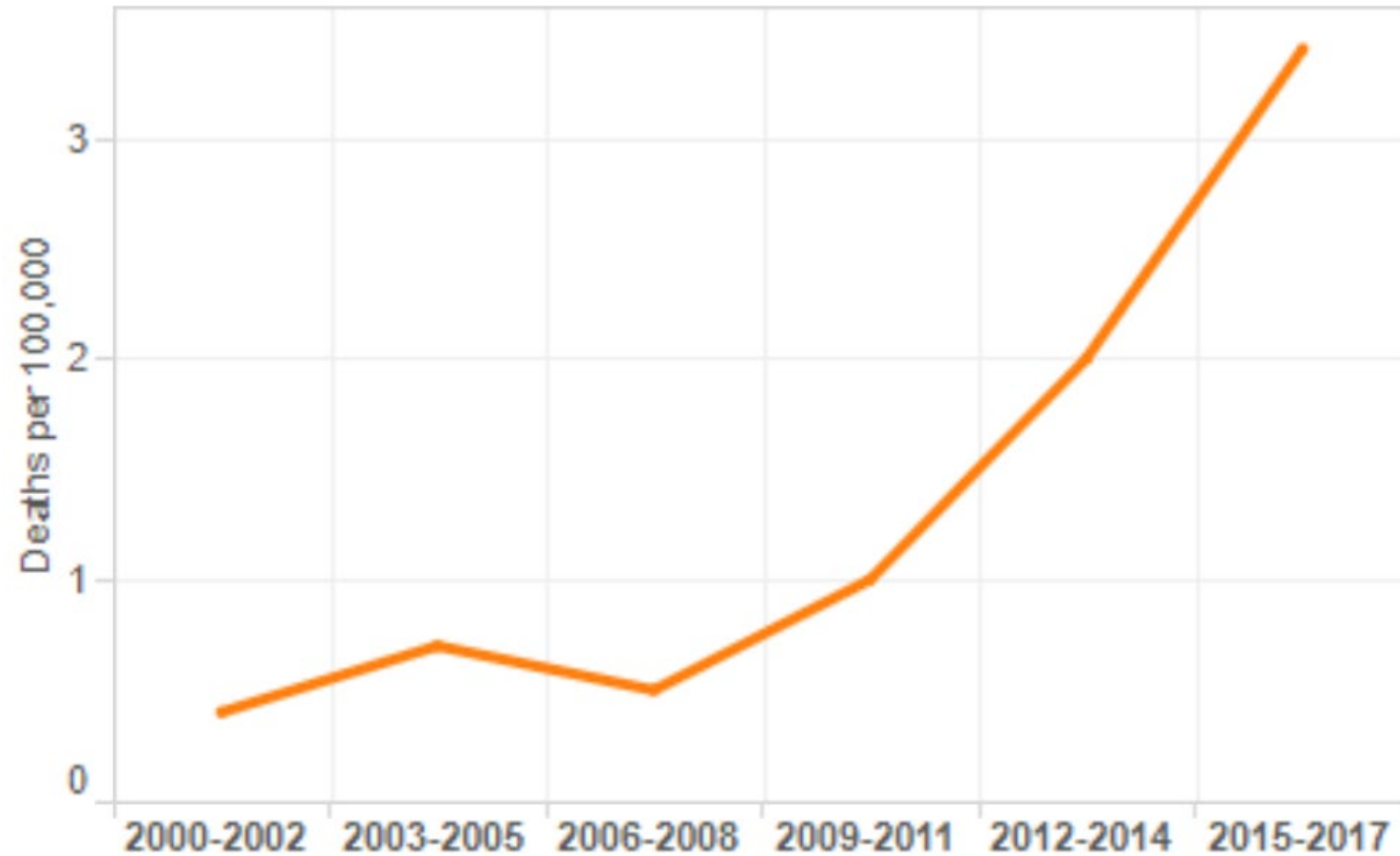
Source: National Vital Statistics System, Mortality File. <https://wonder.cdc.gov/>.

Methamphetamine-Involved Deaths: King County, WA

Drugs Involved in Confirmed Overdose Deaths
(Note: Decedent may be represented in multiple lines)

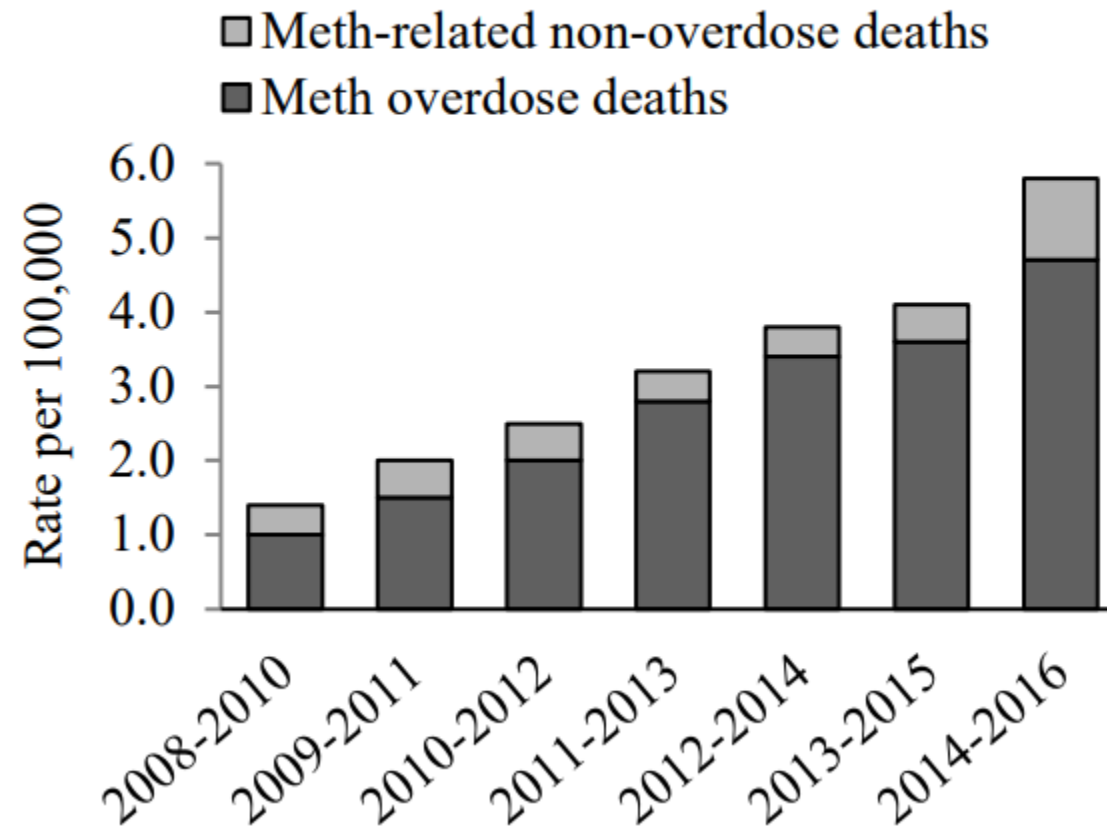


Methamphetamine-Involved Deaths: Oregon

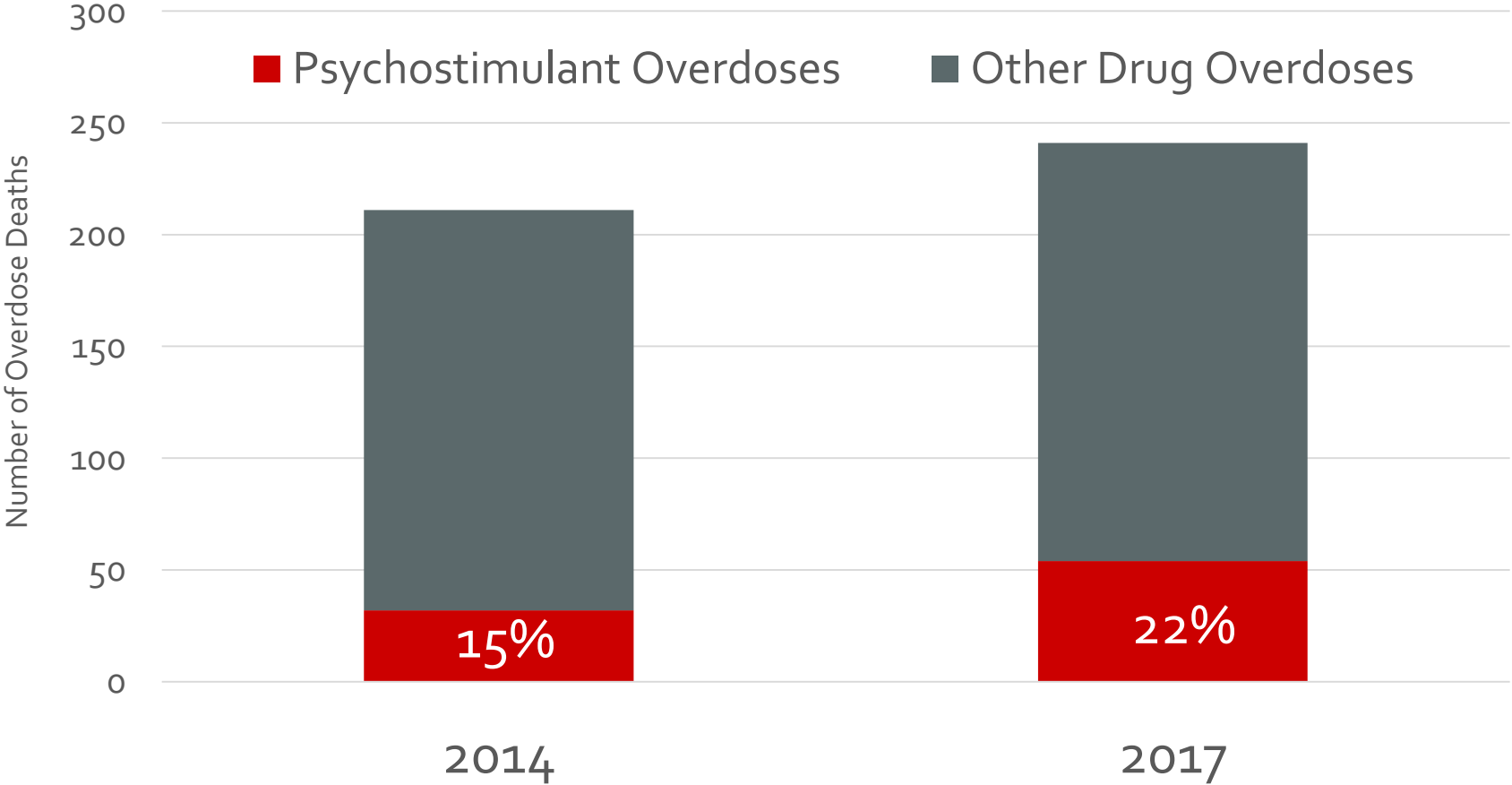


Methamphetamine-Involved Deaths: Alaska

Figure 6. Rate of Meth-Related Mortality, by Year and Type of Death — Alaska, 2008–2016 (N=233)

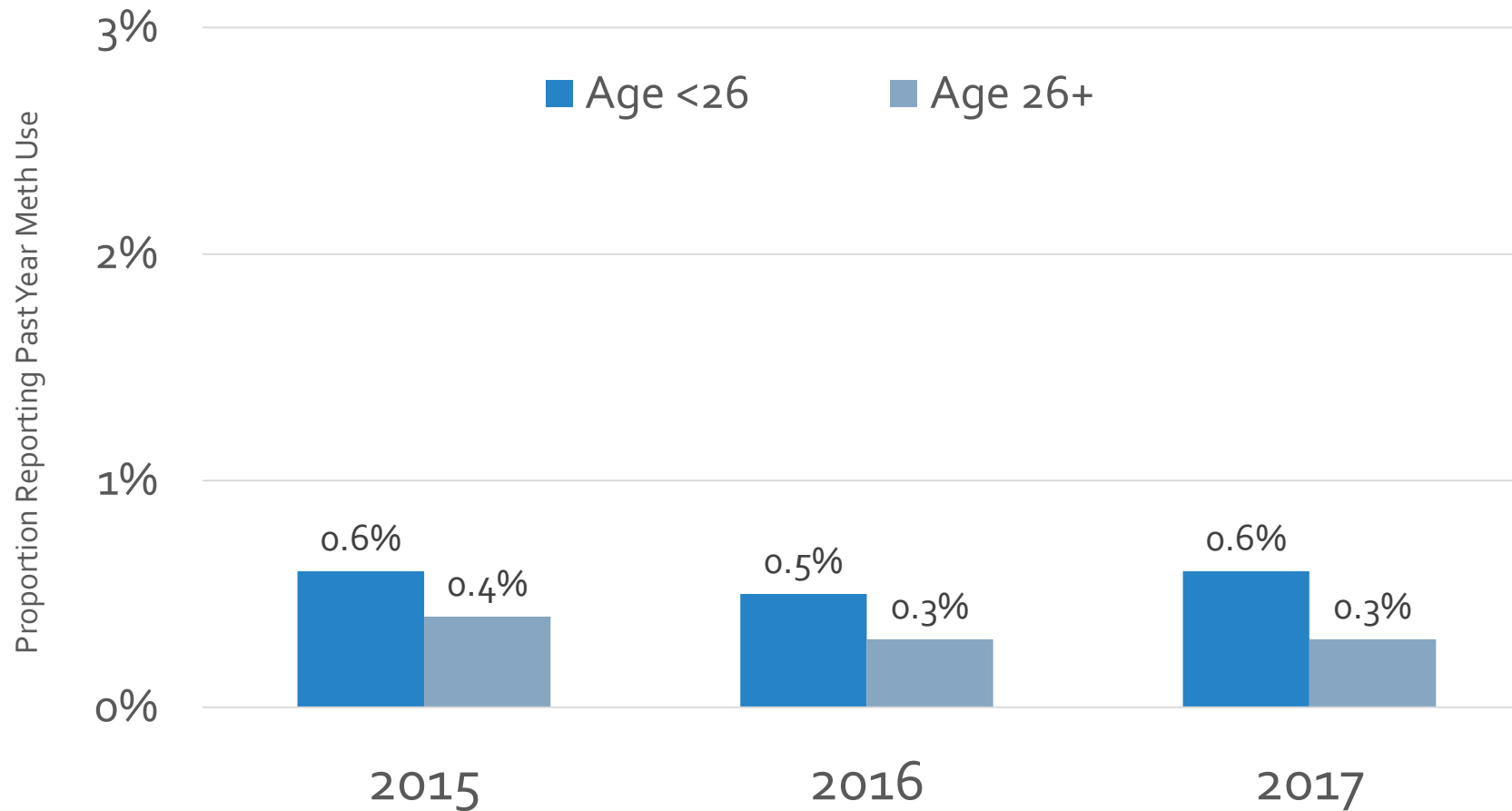


Methamphetamine-Involved Deaths: Idaho



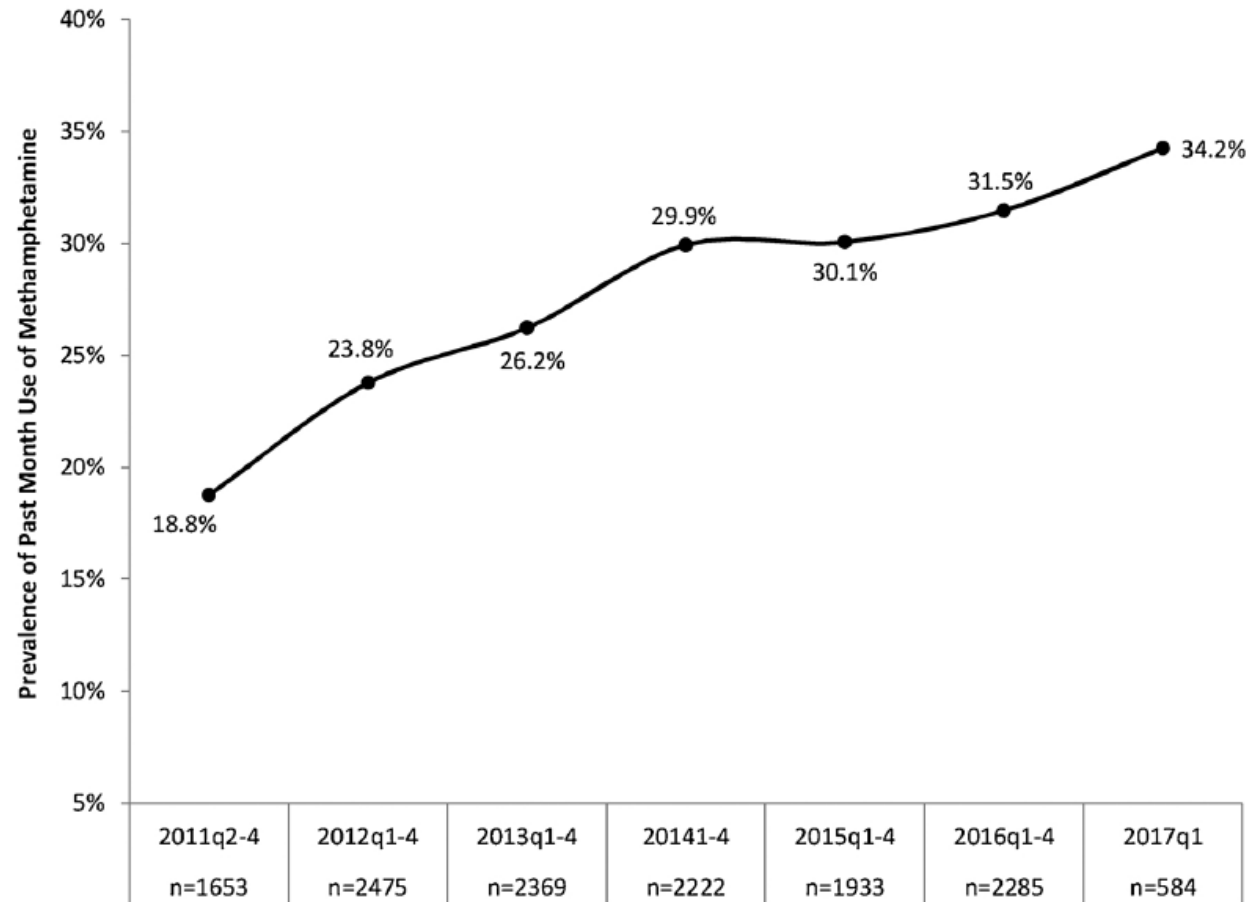
Ref: Idaho Department of Health and Welfare, Randi Pedersen, personal communication

Methamphetamine Use in the General Population



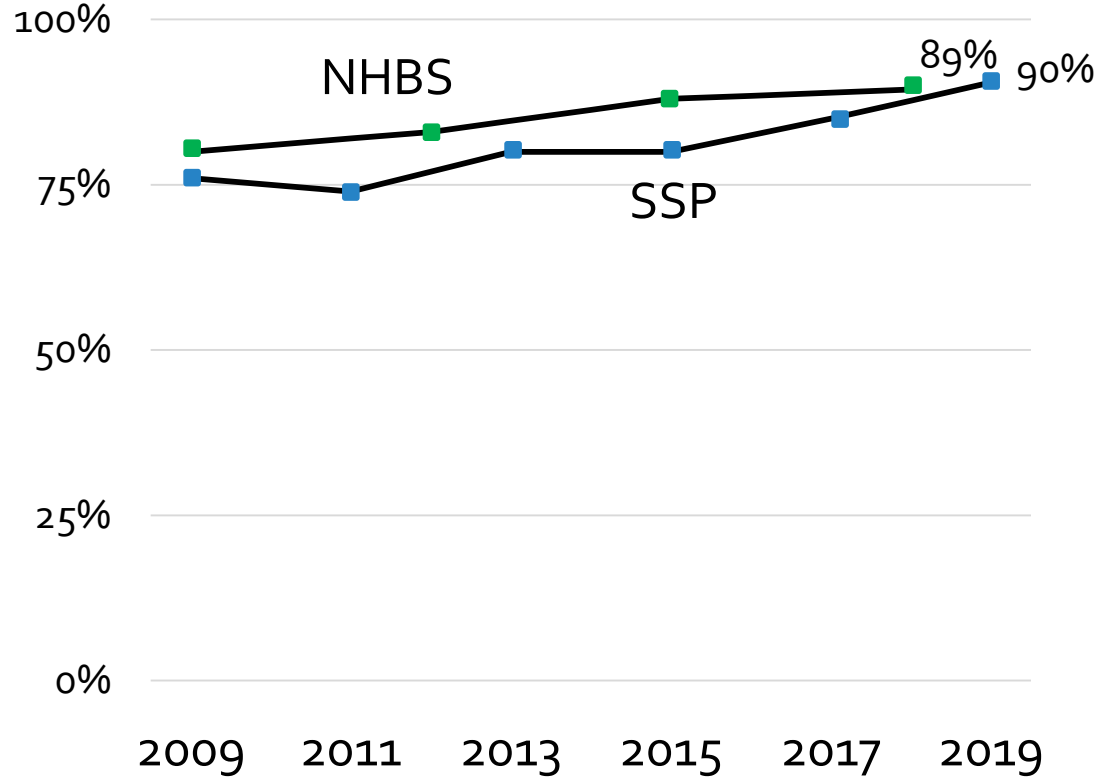
Methamphetamine Use Has Increased in Substance Using Populations

Past Month Methamphetamine Use, Opioid Use Disorder Treatment Patients (SKIP), 2011-2017

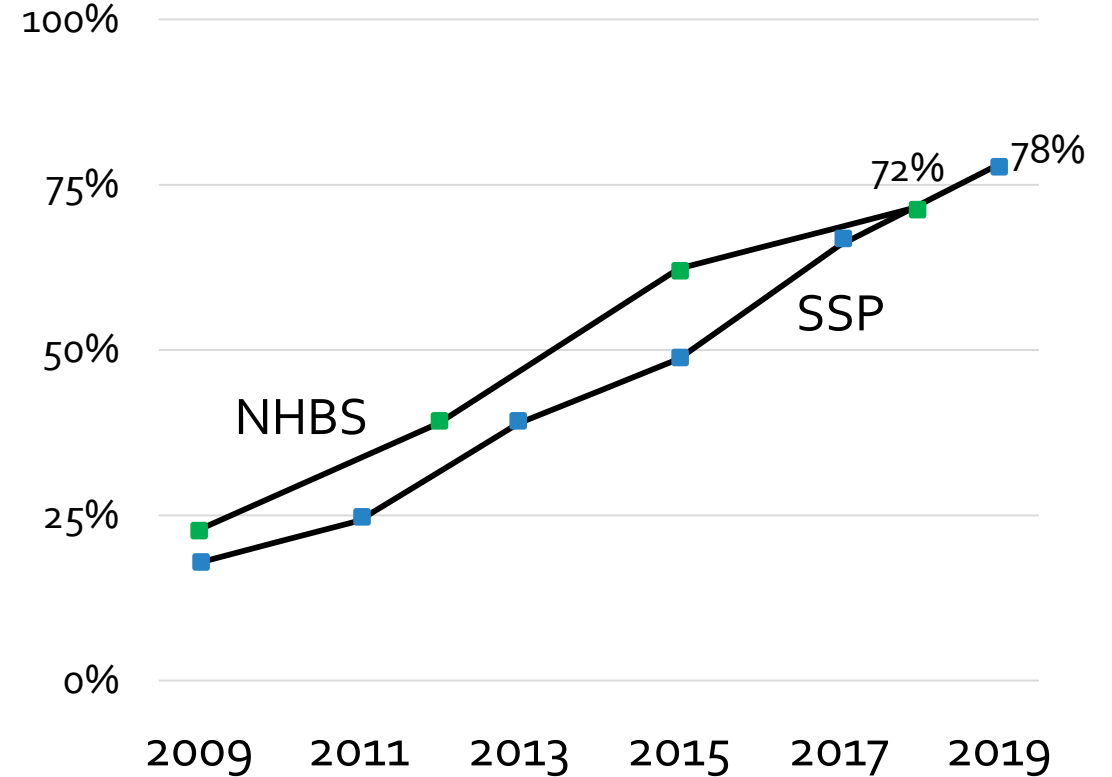


Methamphetamine Use Has Increased among PWID in King County, WA

Any Recent Meth Use, MSM PWID



Any Recent Meth Use, Non-MSM PWID



Characteristics of PWID Who Use Methamphetamine in King County, WA

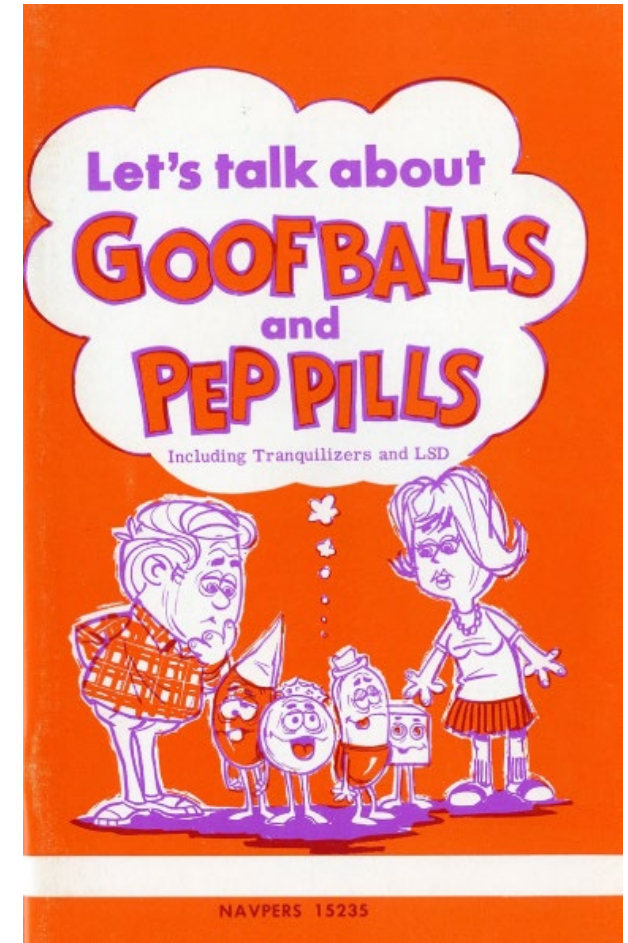
2015-2017 SSP Survey Participants	Injected Any Meth	Did Not Inject Meth
Age, average	35.5 years	39.6 years
Female gender	30%	42%
Race/ethnicity		
Black	6%	9%
Latino	7%	8%
White	69%	72%
Other/multiple	18%	11%
Homeless or unstably housed	74%	50%
Injections per day, average	3.9	3.6
Shared any syringe, past 3 mo.	27%	10%

Characteristics of PWID Who Use Methamphetamine

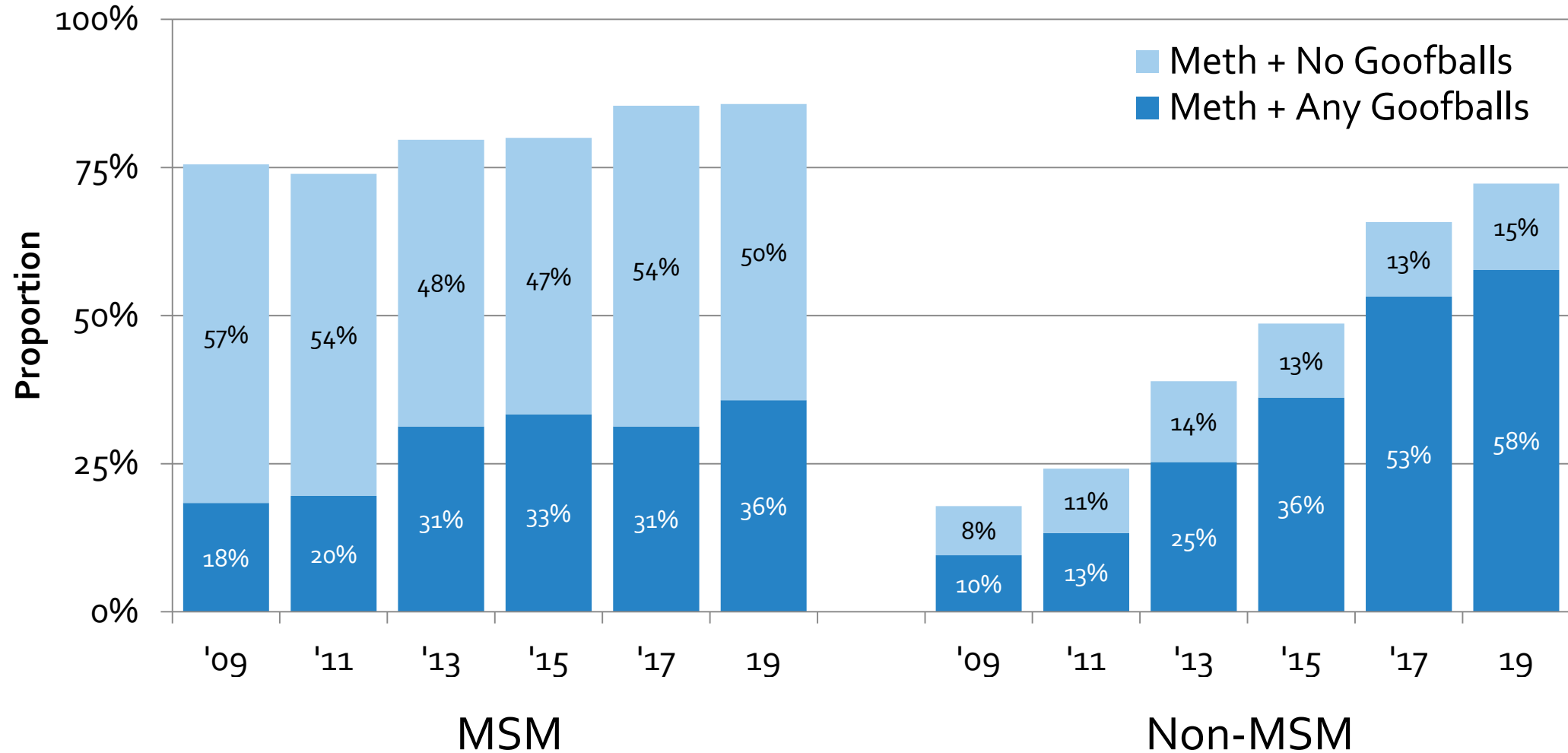
- 2015-2017: 24% of SSP clients reported their **main drug was meth**
- 2017: Asked all PWID about **smoking meth**
 - **55% overall**
 - 51% among those whose main drug is heroin
 - 62% among those whose main drug is meth
- 2017: 18% of PWID who use meth reported **“overamping”**
- 2019: In the past 12 months, among people who use meth...
 - 17% felt like they were having a **heart attack, stroke, or seizure** while on meth
 - 34% felt like they were **losing their mind, manic, or psychotic** while on meth
 - 15% had **been to an ER** because of a medical or psychiatric problem related to meth

Goofballs

- Mixing meth and heroin in the same solution and injecting together
- Published reports of prevalent use in Denver, San Diego, SF, Seattle
- Interaction effect: effect of each drug higher than when used alone



Methamphetamine / Heroin Co-Use is Increasing among PWID in King County, WA



Goofball Use is Associated with High Risk Behaviors and Negative Health Outcomes among PWID

2017 SSP Survey Participants	Goofball Use Adjusted PR	95% Confidence Interval
Age 18-29 (vs. 40)	1.29	1.01-1.64
Age 30-30 (vs. 40)	1.28	1.01-1.62
Male gender (vs. female)	1.21	1.02-1.45
Incarcerated, last 12 mo.	1.29	1.08-1.55
Injects daily	1.43	1.11-1.85
Injections per day	1.01	1.00-1.03
Injected in jugular vein, last 3 mo.	1.42	1.20-1.69
Ever inject alone	1.25	1.01-1.54
Ever inject in public	1.37	1.10-1.69
Infected blood clot or blood infection, last 12 mo.	1.20	1.02-1.42
STI, last 12 mo.	0.57	0.33-0.99
Witnessed opioid overdose, last 3 mo.	1.34	1.08-1.66
Witnessed stimulant overamp, last 3 mo.	1.25	1.08-1.46

METHAMPHETAMINE AND HIV

Methamphetamine Use Increases HIV Risk in MSM

- Strong evidence of increased risk for HIV among MSM who use meth
 - One of several “club drugs” (poppers, MDMA, ketamine, GHB)
 - Increased use among MSM throughout 1980s-1990s
 - Hypersexuality, euphoria, lowering of sexual inhibitions, increase confidence
 - Associated with sexual behaviors that increase risk of HIV transmission
- Associated with lower PrEP adherence
- Decreases HIV medication adherence

HIV and Sexually Transmitted Infection (STI) Screening* Recommendations

For Men who Have Sex with Men (MSM) and Transgender and Non-Binary (TG/NB) Persons Who Have Sex with Men

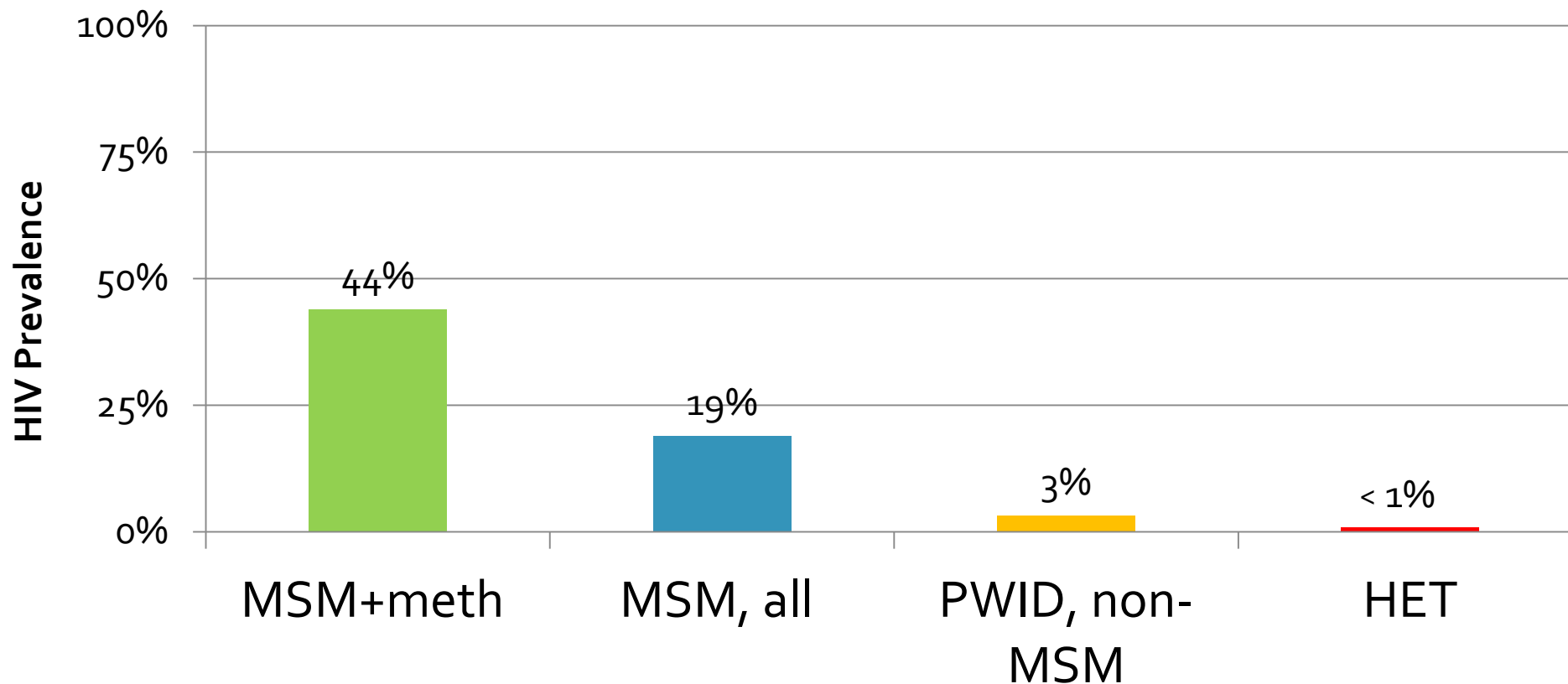


2. Repeat HIV and STI testing (as above) should be performed every 3 months in MSM and TG/NB persons who have sex with men with any of the following risks***:

- Diagnosis of a bacterial STI in the prior year (gonorrhea, chlamydial infection or early syphilis)
- Methamphetamine or popper (amyl nitrite) use in the prior year
- ≥10 sex partners (anal or oral) in the prior year
- Condomless anal intercourse with a partner of unknown or discordant HIV status in the prior year
- Persons taking HIV pre-exposure prophylaxis (PrEP)

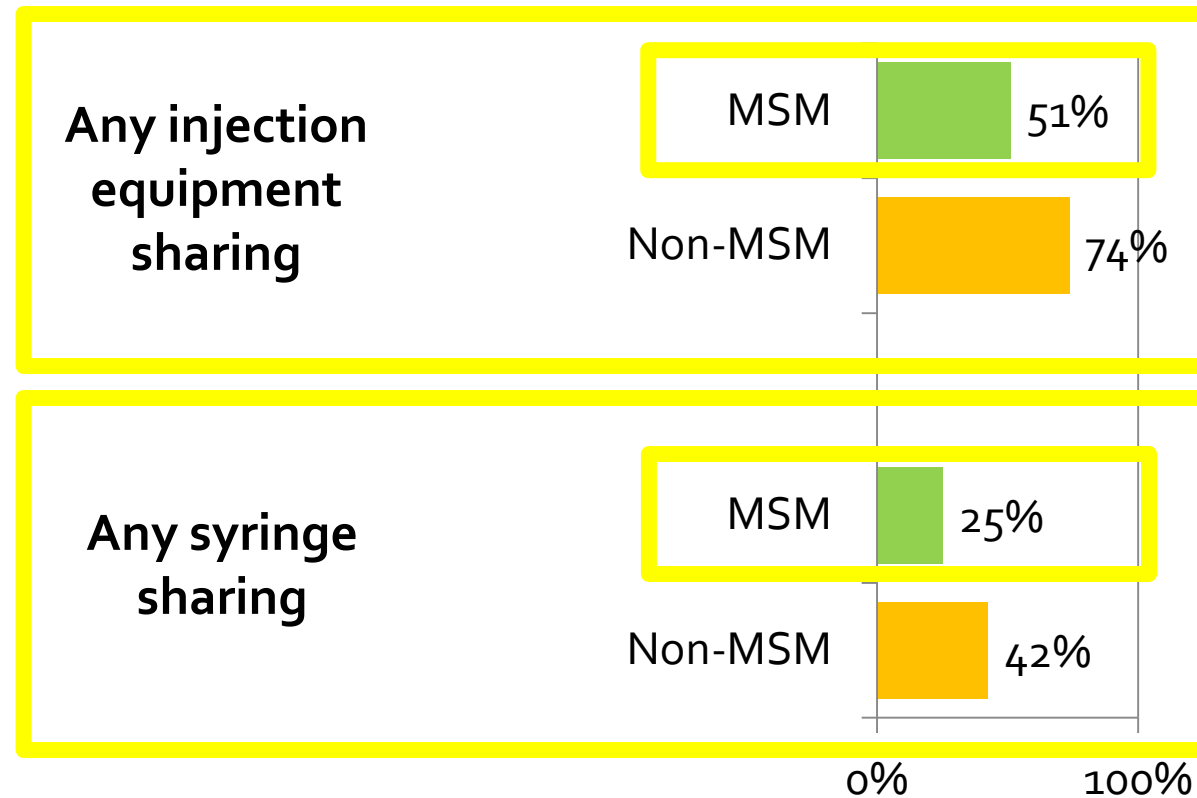
High HIV Prevalence among MSM Who Use Meth

National HIV Behavioral Surveillance (NHBS)
Seattle area, 2013-2018

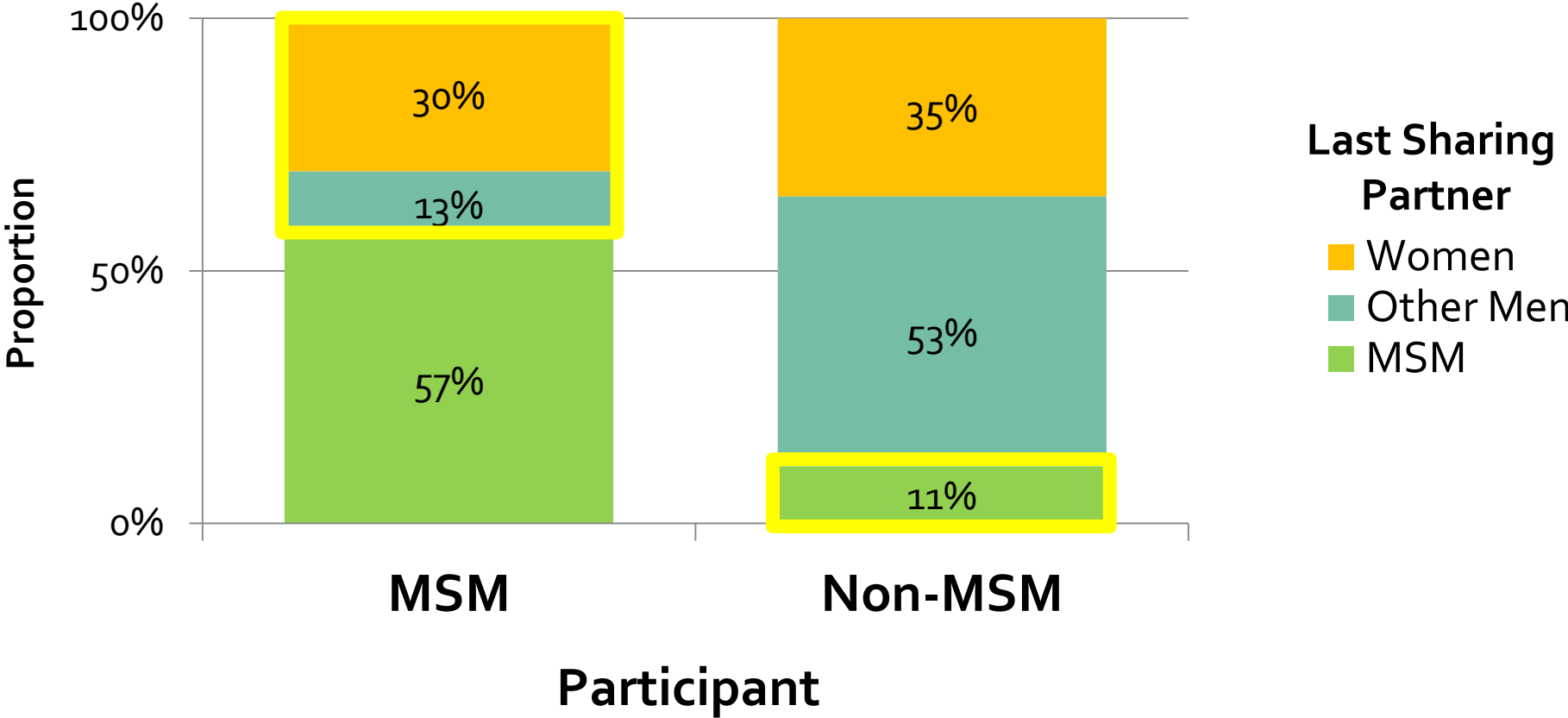


Injection Equipment Sharing, PWID who Inject Meth

NHBS-IDU (2009-15)
Sharing in Past Year



Evidence of Equipment Sharing between MSM and Non-MSM Who Inject Meth



PUBLIC HEALTH INSIDER

OFFICIAL INSIGHTS FROM PUBLIC HEALTH – SEATTLE & KING COUNTY STAFF



A NEW POPULATION MAY BE AT RISK FOR HIV. HERE'S WHY.

Hilary N. Karasz

Public health focuses HIV prevention activities to those at highest risk. In King County, that has meant decades of intensive work to reduce transmission of HIV among men who have sex with men (MSM), the group most impacted by HIV locally. As a result of that targeted strategy, the number of new cases of HIV has been declining since the late 1990's. Earlier this year, **King County became among the first in the country** to reach a very important global milestone in HIV prevention.



Courtesy Medline Plus

But new research led by one of our own Public Health epidemiologists has exposed the potential for HIV to expand among people other than MSM, specifically, to non-MSM who inject drugs such as methamphetamine. What's behind this emerging risk and what does this mean for our prevention efforts? I spoke with Dr. Sara Glick, PhD, the lead investigator of this new study, to unpack the connection between meth use and HIV and understand how the study findings could inform future HIV prevention work.

First, to help understand your study, it focused on learning more about meth use locally. Why is that important for HIV prevention?

We know that meth is a strong and highly addictive stimulant that affects the central nervous system and has been linked to risky sexual behavior. Our estimate is that about 11% of MSM in King County are HIV-positive but for MSM who inject methamphetamine, we estimate that the percentage jumps up to 40-45%. To address this, programs like our needle exchange have been working with MSM to provide access to both substance use and HIV treatment, as well as other services to reduce HIV transmission. The study was led by Dr.



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Health officials, worried about outbreak, investigate HIV cluster in North Seattle

Originally published August 30, 2018 at 1:09 pm | Updated August 30, 2018 at 7:36 pm



- NEWS
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- OPINION
- ARTS
- VENDOR PROFILES

HIV outbreak among homeless people worries health officials



by Ashley Archibald | October 24th, 2018



SOUND STORIES. SOUND VOICES.

9 cases of HIV on Seattle's Aurora Avenue prompt urgent response



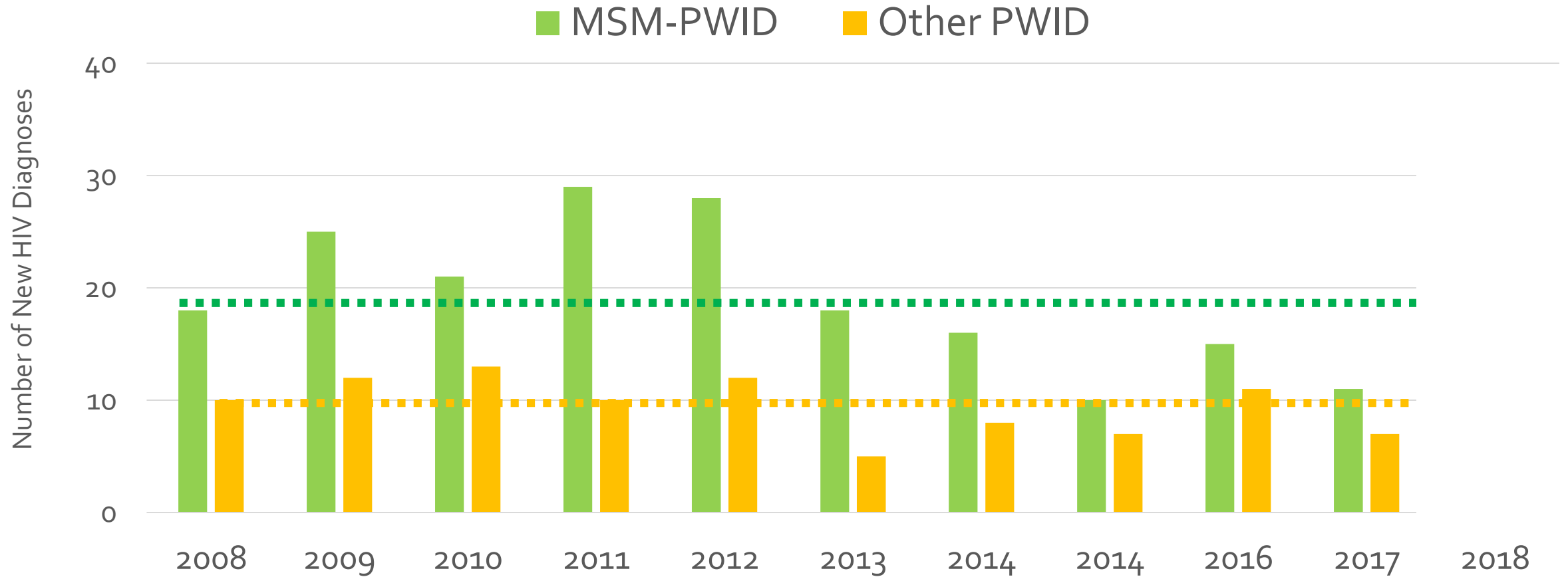
KING COUNTY

Officials Warn of More HIV Transmissions Among Homeless Drug Users

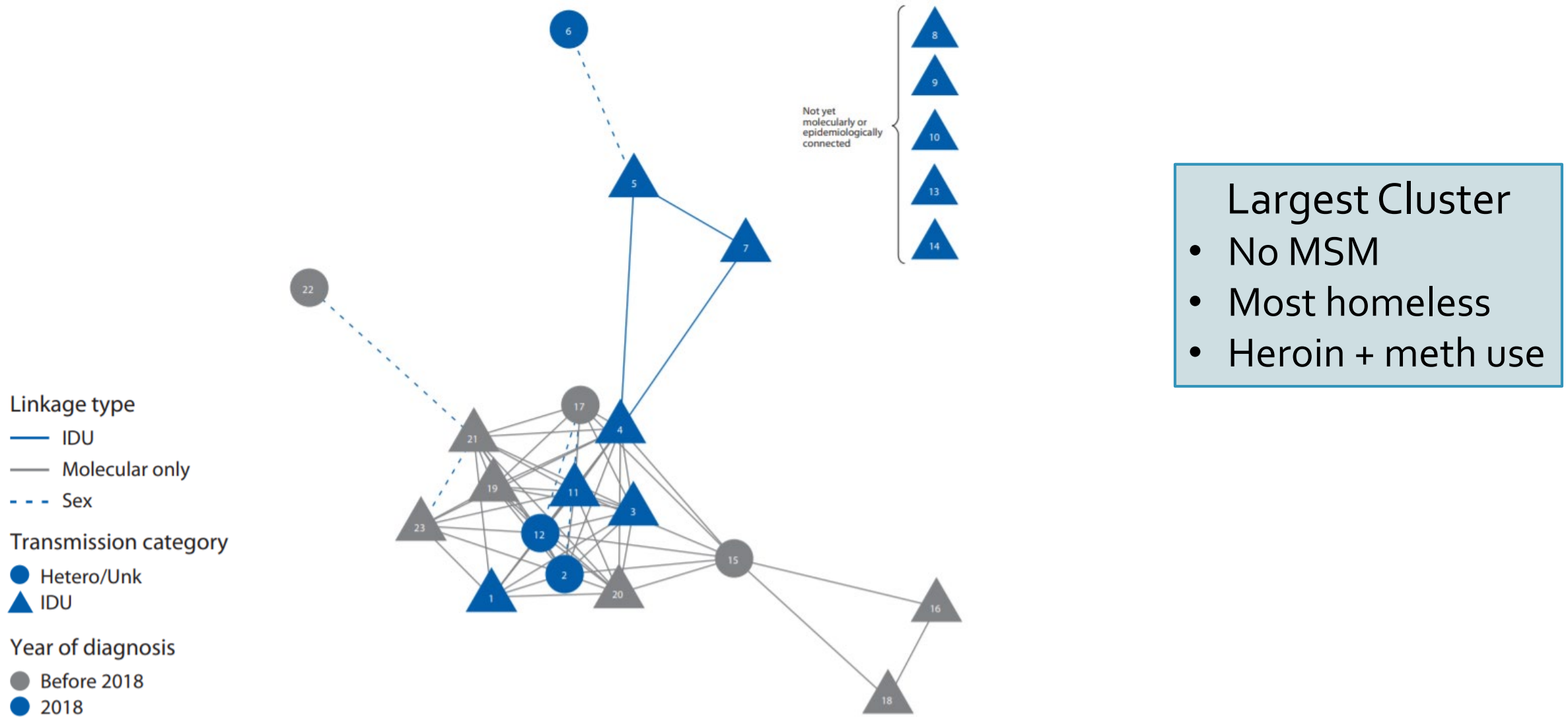
By Josh Kelety

Friday, August 31, 2018 2:24pm | NEWS & COMMENT

New HIV Diagnoses, King County PWID, 2008-18

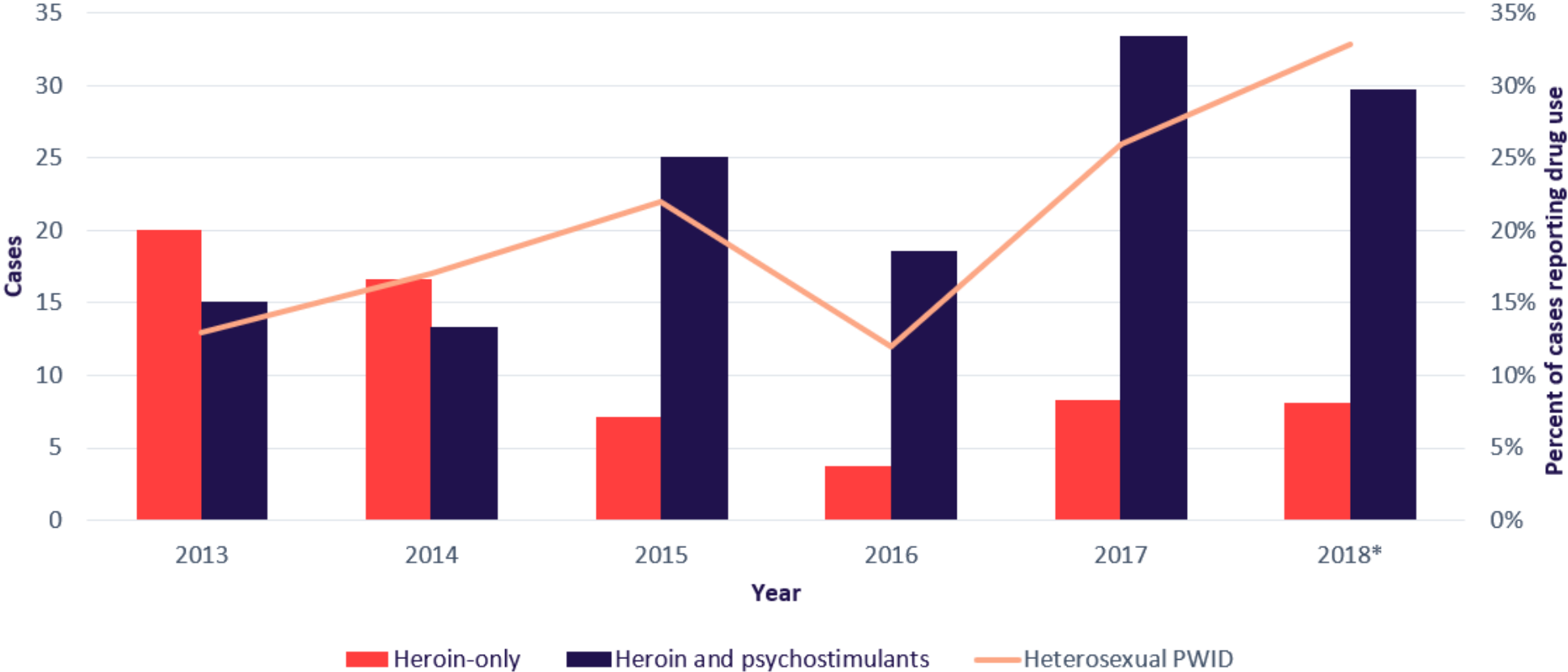


2018 HIV Cluster among PWID, Meth Use, and MSM



Increase in HIV among non-MSM PWID in Oregon

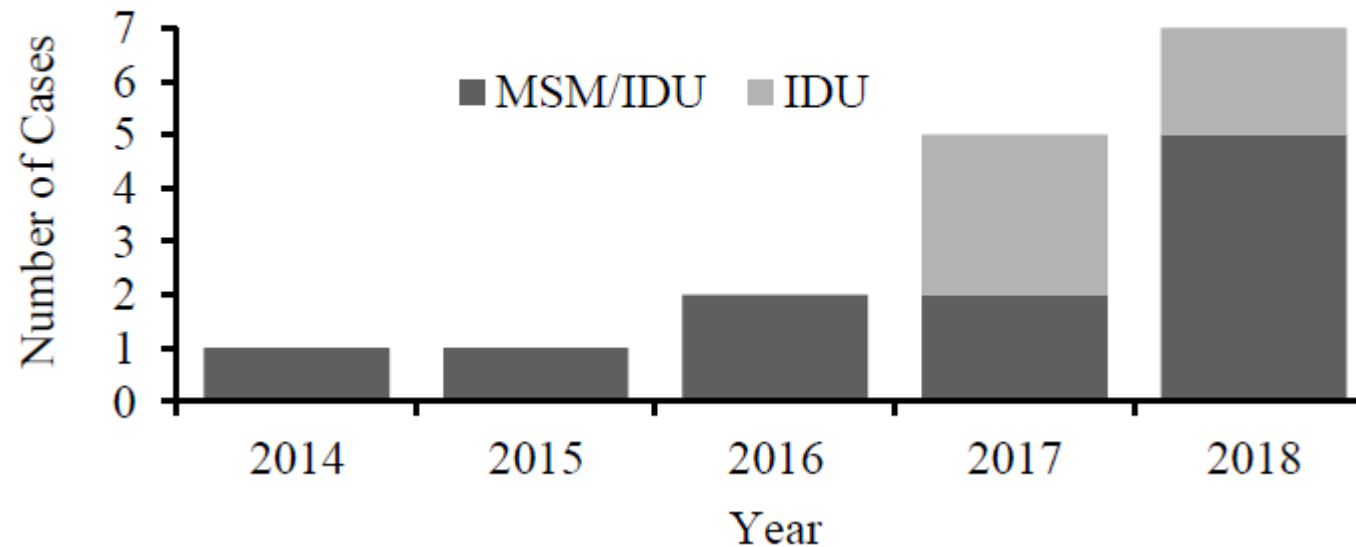
HIV diagnoses among persons who inject drugs, Oregon 2013–2018, adjusted for reporting delay*



Ref: Timothy Menza, personal communication

Increase in HIV among PWID in Alaska

Figure. Number of HIV Cases with IDU Risk Factor by Year of Diagnosis — Alaska, 2014–2018



Note: In 2018, all 7 new HIV cases reported using methamphetamine.

PWID are a High Proportion of HIV Cases in Idaho

- 2008-2017:
 - PWID: 59 of 263 HIV cases (22%)
 - Varied from 4.8% in 2011 to 90.9% in 2012
 - 6 years when PWID were 20%+ of new HIV cases



WHY DO PEOPLE USE METHAMPHETAMINE?

We Asked PWID Why They Used Meth...

Reason	% who endorsed
To get things done	74%
I like the high	72%
Other people I know are using it	64%
It's cheaper/easier to find than other drugs	61%
To stay awake to make money	53%
To stay awake because I don't have a safe place to sleep	44%
It makes me enjoy sex more	42%
To stop or reduce using heroin	28%
Other	33%

Other responses included: helps focus, enhanced high, stay awake (in general), self-treating ADHD, to stay social, appetite suppressor, "it's everywhere"

METHAMPHETAMINE TREATMENT AND HARM REDUCTION

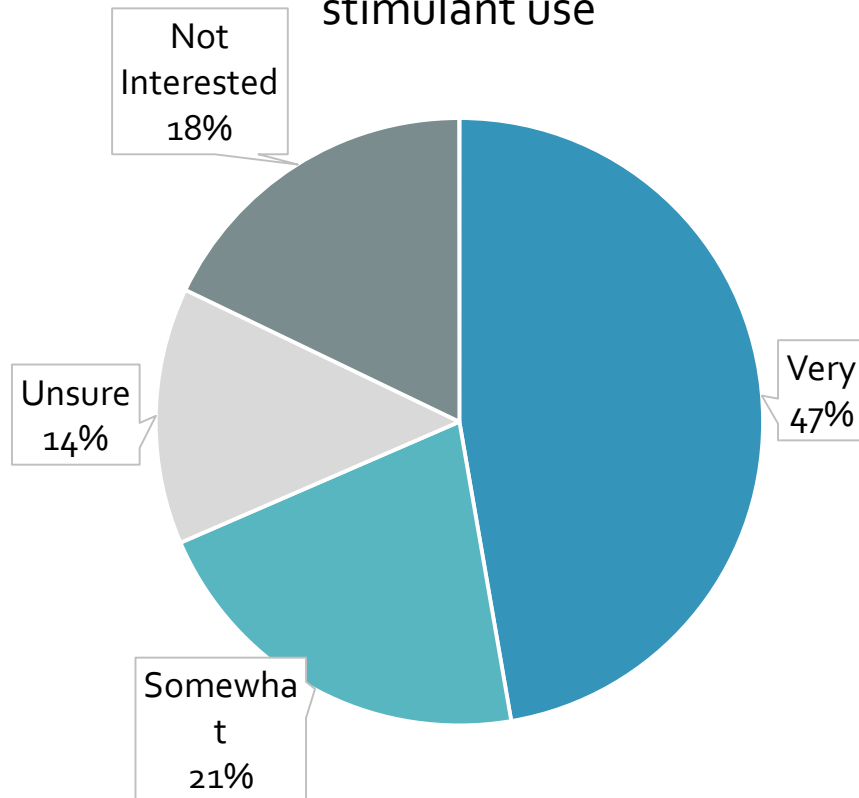
Limited Evidence-Based Treatment Options for Methamphetamine Use

- Cognitive-behavioral therapy
 - Matrix Model: 16 week program including behavioral therapy, individual counseling, family education, 12-step support, drug testing
- Contingency management
 - Provide incentives for engaging in treatment and abstinence
- Medications
 - No medication with broad and/or strong effect on meth abstinence
 - Some candidates:
 - Mirtazapine – increased abstinence
 - Bupropion, methylphenidate, topiramate – some efficacy depending on baseline use
 - Low adherence is a challenge
- Methamphetamine use may also impact treatment for opioid use disorder

PWID Who Use Methamphetamine Want Treatment

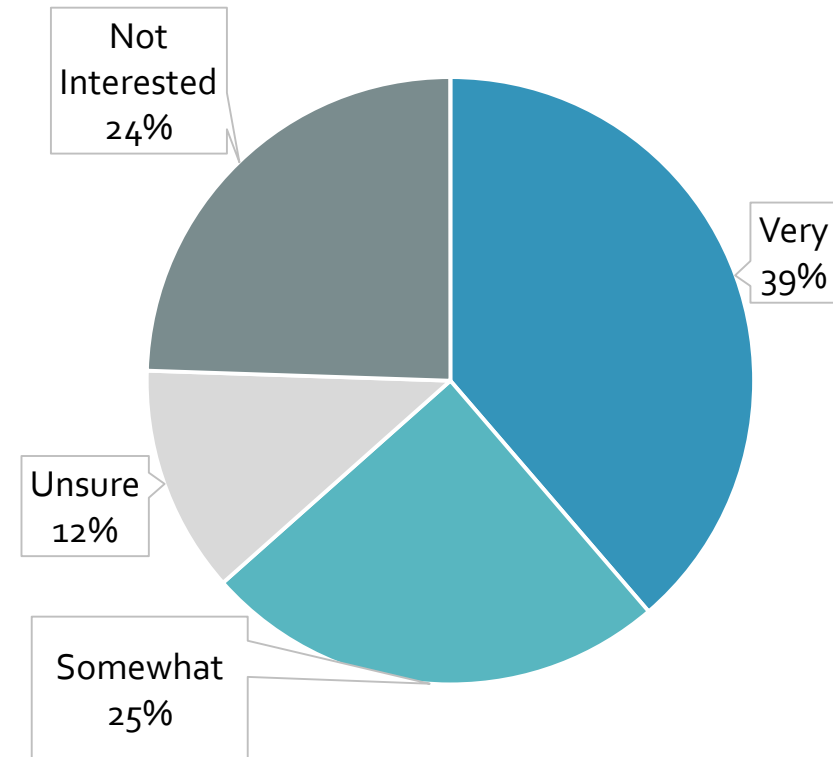
NHBS

Interest in reducing or stopping stimulant use



SSP

Interest in reducing or stopping stimulant use



What Type of Treatment Do PWID Who Use Methamphetamine Want?

Among King County PWID who indicated that they were “very” or “somewhat” interested in reducing or stopping their stimulant use...

Option	% who endorsed
1:1 counseling / talking with someone	71%
Medication that may help reduce stimulant use	65%
Someone to help navigate services	64%
Detox	54%
Mental health medications	54%
Outpatient program	53%
Inpatient/residential program	46%
Other	7%

Interest in Methamphetamine Treatment is Associated with Mental Health Concerns

Among Washington State PWID (excluding King County)...

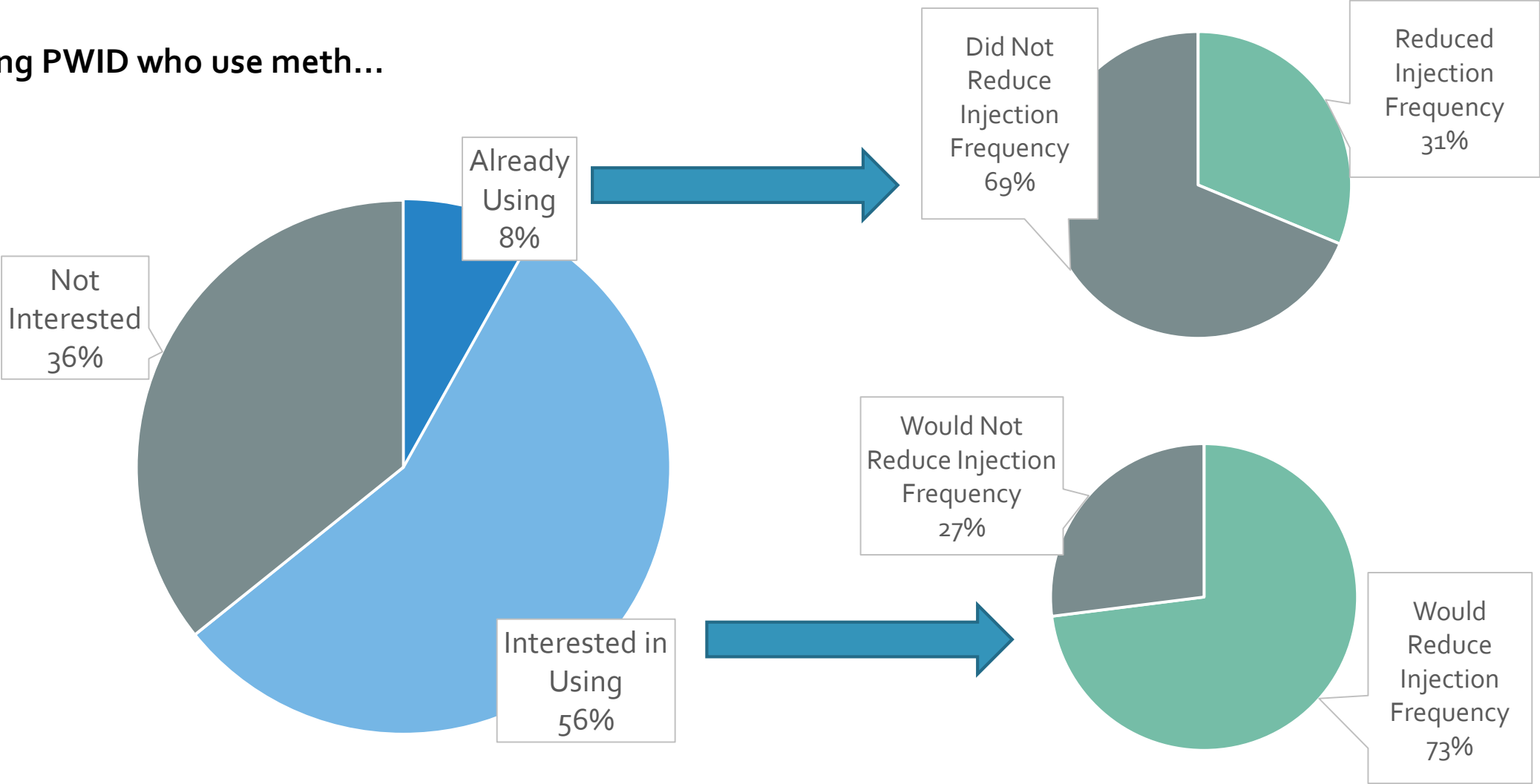
Characteristic	Interested in Treatment	Not Interested in Treatment	p-value
Age, median	35	42	0.011
Housing			
Permanent	40%	60%	0.035
Unstable / Homeless	58%	42%	
Concerned about mental health			
Not at all	38%	62%	<0.001
Very / Somewhat	66%	34%	

Harm Reduction for Methamphetamine Use

- Basic human needs
 - Eat, drink water, sleep
- Reduce HIV/STI risk through sexual transmission
 - HIV pre-exposure prophylaxis (PrEP)
 - Personal risk reduction plans
- Paranoia
 - Identify patterns and identify ways to reduce anxiety and harmful outcomes
- Syringe services programs
 - Sterile injection equipment
 - Smoking equipment

Smoking Equipment for Methamphetamine

Among PWID who use meth...



CONCLUSIONS

Conclusions

- Methamphetamine use is increasing in the US, particularly in Western States, among people using other substances, and among people living homeless
- Methamphetamine use is associated with negative health outcomes including cardiovascular disease, HIV, cognitive decline, and mental health disorders
- Ongoing HIV outbreaks among PWID are in the context of high levels of meth use, although there isn't evidence of direct links to MSM
- Methamphetamine use treatment is extremely challenging
 - Few effective treatment options
 - Serves a functional role
 - Polysubstance use
- Harm reduction for people using methamphetamine should be a priority for health care providers, social service providers, and health departments

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- Melissa Boyette (Alaska)

Public Health – Seattle & King County

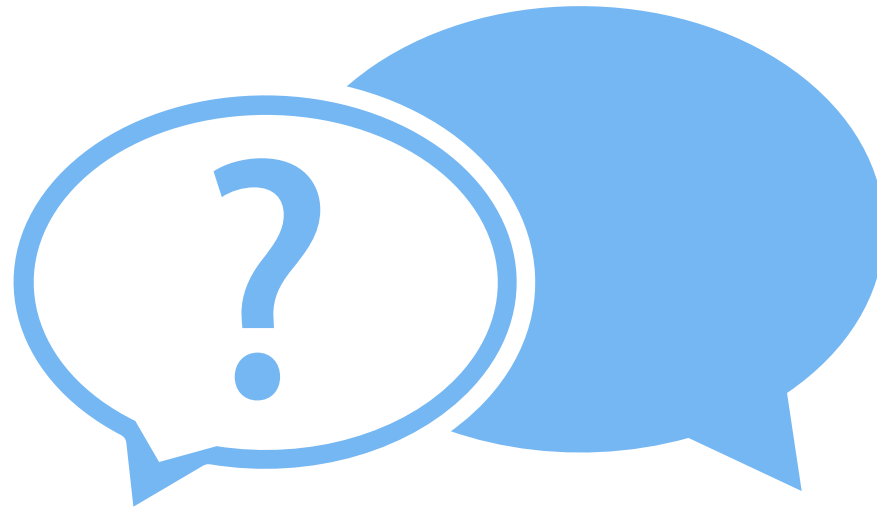
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- NHBS Interviewers

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- Center for Disease Control & Prevention

THANK
YOU to all
survey
participants!

Questions? Please type them in
the chat box!



Sara Glick
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Upcoming Events

Join us for our next webinar!

Peers for Chronic Pain: What Lived Experience Can Do to Help the Pain and Opioid Crisis

Michelle Marikos, PSS
August 28, 2019, 12-1pm



gracias cảm ơn bạn धन्यवाद 고맙습니다
شكرا جزيلًا salamat благодарю вас 谢谢
Dziękuję Ci **Thank** ευχαριστώ
quyana tack **you!** ក្រៃបេតិកភណ្ឌ
धन्यवाद danke asante grazie
hík'wu? merci הודת obrigado ขอบคุณ
ありがとうございました спасиби mahalo